

CLAIMS

1. (Currently amended) A system for processing a set of data bits ~~using a subset of a recurring sequence of scrambler bits, the system comprising:~~

~~receiving means for receiving said set of data bits;~~

~~storage means for storing said the set of data bits;~~

~~digital logic means for determining ~~an appropriate~~ a subset of ~~said a serial~~ sequence of scramble bits based, at least in part, on a generator polynomial and one or more bits from a prior appropriate subset by applying a generating polynomial to the serial sequence of scramble bits;~~

~~generating means for generating ~~said appropriate subset~~ based, at least in part, on said generator polynomial and said prior appropriate subset wherein, for each bit of said set of data bits, at least one bit of said appropriate subset is associated therewith the subset responsive to an immediately preceding state of the subset; and~~

~~digital operation means for performing a bitwise parallel digital operation between said appropriate subset and each bit of said set of data bits and said at least one bit of said appropriate subset associated therewith each bit of the set of data bits with at least one corresponding bit of the subset to produce an output set of data bits;~~

~~where a number of bits in the subset corresponds to a periodicity of the serial sequence of scramble bits.~~

2. (Currently amended) A system according to claim 1 wherein ~~said the~~ system ~~scrambles is adapted to scramble~~ said the set of data bits using ~~said appropriate subset of scramble bits~~ the subset.

3. (Currently amended) A system according to claim 1 wherein ~~said the~~ system ~~deserambles is adapted to scramble~~ said the set of data bits using ~~said appropriate subset of scramble bits~~ the subset.

4. (Currently amended) A system according to claim 1 wherein ~~said comprising~~ receiving means ~~comprises a multiplexer~~ including multiplexing means for receiving the serial sequence of scramble bits.

5. (Canceled)

6. (Currently amended) A system according to claim 5 ~~1~~ wherein ~~said the~~ digital logic means ~~is a~~ includes combinational logic ~~circuit means for logically manipulating the serial sequence of scramble bits.~~

7. (Currently amended) A system according to claim 1 wherein ~~said the~~ bitwise parallel operation is includes a bitwise parallel XOR operation.

8. (Currently amended) A digital scrambler/descrambler using a subset of a ~~securing serial~~ sequence of scrambler bits, the scrambler/descrambler comprising:
selection means for selecting between a first set of data bits to be scrambled and a second set of data bits to be descrambled;

digital logic means for determining ~~an appropriate a~~ subset of ~~said the serial~~ sequence of scrambler bits, ~~said appropriate the~~ subset being determined based on an immediately preceding subset of ~~said the serial~~ sequence of scrambler bits;

digital operation means for executing a bitwise parallel digital operation between ~~said appropriate the~~ subset and either ~~said the~~ first or ~~said the~~ second set of data bits;

where a number of bits in the subset corresponds to a periodicity of the serial sequence of scramble bits.

9. (Currently amended) A digital scrambler/descrambler according to claim 8 wherein ~~said the~~ bitwise parallel digital operation is includes a bitwise parallel XOR operation.

10. (Currently amended) A digital scrambler/descrambler according to claim 8 wherein ~~said the~~ selection means is includes a multiplexer.

11. (Currently amended) A digital scrambler/descrambler according to claim 8 wherein ~~said the~~ digital logic means is includes a combinational logic circuit.

12. (Currently amended) A digital scrambler/descrambler according to claim 11 wherein ~~said the~~ digital logic means includes a digital storage means for storing ~~said the~~ immediately preceding subset.

13. (Currently amended) A method of processing a plurality of data bits using a subset of a recurring serial sequence of scrambler bits, the method comprising:

- a) ~~receiving and storing in parallel said the~~ plurality of data bits;
 - b) determining ~~a an appropriate~~ subset of said the recurring serial sequence of scrambler bits based on an immediately preceding subset of ~~said the recurring serial~~ sequence of scrambler bits;
 - c) generating ~~said appropriate the~~ subset wherein, for each bit of said the plurality of data bits, at least one bit of said the appropriate subset is associated therewith;
 - ~~d) loading said appropriate subset in a storage means; and~~
 - e) ~~d)~~ performing a bitwise parallel XOR operation between ~~said appropriate subset and~~ each bit of said the plurality of data bits and said the at least one bit of ~~said appropriate the~~ subset associated therewith to produce an output set of data bits;
- where a number of bits in the subset corresponds to a periodicity of the recurring serial sequence of scramble bits.

14. (Currently amended) A method according to claim 13 wherein ~~step b)~~ is accomplished by comprising performing logical operations between specific scrambler bits of ~~said the~~ immediately preceding subset.

15. (Currently amended) A method according to claim 13 wherein ~~step c)~~ is accomplished by comprising performing logical operations between specific scrambler bits of ~~said the~~ immediately preceding subset.

16. (Currently amended) A method according to claim 13 wherein ~~said storage means is comprising loading the subset in a register.~~

17. (New) A scrambler comprising:

a register block to store a current state of a subset of a recurring serial sequence of scramble bits;

a predict logic block to generate the current state of the subset responsive an immediately preceding state of the subset; and

a scramble logic block to scramble a data set in parallel with the current state of the subset;

where the number of bits in the current state of the subset corresponds to a periodicity of the recurring serial sequence of scramble bits.

18. (New) The scrambler of claim 17 comprising a multiplexer block to multiplex a serial version of the data set to create a parallel version of the data set.

19. (New) The scrambler of claim 17 where the predict logic block or the scramble logic block includes a corresponding plurality of parallel combinational sub blocks.

20. (New) The scrambler of claim 17 where the predict logic block is configured to determine the current state of the subset by applying a generator polynomial defined in the IEEE 802.11a.